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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,240	05/30/2001	Mark C. Duhon	22.1397	8266

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EXAMINER

HALFORD, BRIAN D

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,240

Applicant(s)

DUHON ET AL.

Examiner

Brian D Halford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-11 and 27-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40 and 41 is/are allowed.
- 6) ☒ Claim(s) 2-11, 27, 35, 39, 42 and 43 is/are rejected.
- 7) ☒ Claim(s) 28-34 and 36-38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Metcalfe *et al.* As stated in paragraph [0001], Metcalfe *et al.* disclose a method and apparatus for plastically locating and sealing a section of liner relative to an existing casing. As disclosed in paragraph [0030], the liner may be fabricated from a soft ductile metal or superplastic material. As illustrated in Figures 3 and 4 and discussed in paragraph [0057], the soft metal liner (26) expands radially to effect a seal with the liner hanger (24). Soft metal ductile bands or components (28, 29), which engage the periphery of the soft metal (26) liner, realize a robust seal with the liner hanger (24) via casing profiles (30, 31).
3. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Wuenschel. Wuenschel discloses an apparatus for use in a wellbore, which contains an element formed of an aluminum alloy or superplastic material that performs a downhole task.

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Specifically, Wuenschell discloses a deformable metal liner, fabricated of aluminum or superplastic material, which is capable of withstanding the attendant stresses associated with numerous detonations. As stated in lines 7-11 and 24-37 of Column 1, in concert with lines 11-38 of Column 2, a ductile material or superplastic material is highly desired when performing downhole tasks such as geophysical exploration. The liner (14) is lucidly illustrated in Figure 2; moreover, lines 46-47 of Column 5 disclose that the aluminum alloy liner (14) can withstand an axial strain of 180% before failure. Additionally, lines 17-20 teach that failure of is a function of the employed metal; in the instant case, the aluminum alloy or superplastic material will fail when the strain exceeds a critical value of 180%; however, Wuenschell teaches that other metal alloys possess varying critical failure values—thus, other materials with higher critical values may be used in downhole apparatuses.

4. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Reid. Reid discloses a downhole tool for absorbing the deleterious effect of kinetic energy. As discussed in the final and first paragraphs of respective columns 2 and 3, the tool of Reid contains, *inter alia*, a body that deforms elastically under the effect of kinetic energy. As shown in Figures 1 and 2, an elastically deformable body or shock absorber (18, 22) is responsible for absorbing the energy of a moving well tool (16). As stated in the final paragraphs of column 4, components of the shock absorber (18, 22) are fabricated from soft metal alloys or superplastic materials such as brass.

5. Claims 8-11 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Mohaupt. Mohaupt discloses an oil well stimulation method than involves the

employment of a heating device in the form of a chemical propellant charge to plastically deform the walls of the explosive housing or explosive component (24).

Mohaupt depicts the apparatus involved in the stimulation method in Figures 2, 5 and 6A. As disclosed in lines 44-68 and 1-32 of respective columns 3 and 4, an ignitor (30) initiates combustion of a gas generating mixture (28); subsequently, the aluminum walls of the explosive housing or explosive component (24) plastically deform. Attention is specifically drawn to lines 4-15 and 37-41 of respective columns 4 and 6. As shown in Figure 6A and disclosed in lines 48-65 of column 8, explosive housing or explosive component (24) is additionally provided with spaced apart members or weak point connectors (48) to produce a desired flame propagation.

6. Claims 4, 42 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmer ('059). Ohmer discloses an apparatus and method for establishing branch wells from a parent well. As mentioned in lines 29-67 and 1-18 of respective Columns 2 and 3, Ohmer realizes the establishment of branch wells by employing a branching sub that contains multiple outlet members. The branching sub is depicted in Figures 18A-18D; moreover, the constituents of the branching sub are clearly delineated in lines 6-64 of Column 14. Lines 54-59 of Column 14 disclose that the outlet members are fabricated from superplastic materials such as nickel-based alloys. As stated in the abstract, superplastic materials are employed to ensure that the outlet members possess a radius that is commensurate with the radius of the branching chamber.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

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under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arizmendi in view of Wuenschel. The features of the patent to Wuenschel have been disclosed *supra*. Turning to the Arizmendi patent, a downhole anchor is depicted in Figures 1-3. As discussed in lines 48-67 and 1-48 of respective columns 4 and 5, a body or anchor (22) is actuated by a deformable material (26). The deformable material (26) is subject to plastic deformation thereby actuating the body or anchor (22) to effect an anchoring within the wellbore. Arizmendi states that the deformable material (26) may consist of a ductile metal; however, Arizmendi fails to disclose the use of a superplastic material. Therefore, it would have been obvious to a person having ordinary skill in the art, at the time the invention was made, to equip the invention of Arizmendi with the soft aluminum alloy or superplastic material of Wuenschel to realize a desired plastic deformation.

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9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castano-Mears *et al.* in view of Wuenschel. Castano-Mears *et al.* disclose an expandable well screen for downhole use. As depicted in Figure 2 and discussed in lines 45-52 of column 1, an expandable well screen (36) is provided. Castano-Mears *et al.* disclose in paragraphs 3 and 4 of the aforementioned column that enhanced torsional and tensile strength is highly desirable in a downhole well screen. The patent to Wuenschel, as discussed *supra*, teaches the significance of employing downhole ductile soft metals, such as aluminum alloys; specifically, the ductile nature of aluminum alloys or superplastic materials afford considerable strain prior to failure. Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to fabricate the expandable well screen of Castano-Mears *et al.* from the aluminum alloy or superplastic material of Wuenschel to afford increased strength.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gazda in view of Reid. Gazda discloses a device for releasably connecting well tools. Gazda discloses a releasable connector (10) in columns 5-10; additionally, the releasable connector is depicted in Figures 1A and 1B. Gazda discloses in lines 28-35 of column 1 that myriad downhole tools require a jarring motion to effect operation; however, jarring action may negatively impact delicate and expensive instruments. The patent to Reid, as discussed *supra*, teaches the significance of employing downhole ductile soft metals alloys; specifically, the ductile nature of soft metal alloys or superplastic materials afford considerable attenuation of jarring forces. Therefore, it would have been considered obvious to a person of ordinary skill in the art, at the time the invention was made, to

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fabricate the body of the releasable connector of Gazda with the soft metal alloy or superplastic material of Reid to absorb unexpected jarring forces thereby preserving the integrity of delicate instrumentation.

Allowable Subject Matter

11. Claims 40-41 are allowed.
12. Claims 28-34 and 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments filed 25 February 2003 have been fully considered but they are not persuasive. Applicant cites in the final two sentences of the second paragraph on page 6 that the aluminum liner (14) of Wuenschel is not superplastic; however, applicant has *conspicuously* failed to provide a cogent argument to support the adopted position—Applicant merely disagrees with the Examiner. Furthermore, Applicant alleges that Ohmer fails to disclose the recited elements. Again, Applicant fails to provide support for the alleged shortcomings of the cited reference. As discussed in the subsequent section, *aluminum alloys are known to possess superplasticity*. Finally, Applicant states in lines 29-30 in page 3 of the specification that aluminum may constitute a superplastic material.

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patent to LaGrange discloses a device fabricated from deformable memory shape metal. The device is set in a desired downhole location with the application of heat. The patent to Inoue *et al.* disclose that aluminum alloys find employment in myriad disciplines. The patent to McQuilkin discloses that superplastic metals are well known; furthermore, superplastic materials combine the strength of conventional metals with the elongation and formability characteristics of conventional plastic materials. Lines 20-22 and 36-50 of column 1 in the patent to Sanders disclose the use of superplastic materials in various industries. The patent to Takikawa *et al.* disclose that forming products from aluminum based superplastic material is notoriously conventional. Finally, the patent to Miyake *et al.* disclose in line 12 of column 1 that aluminum alloys are known to possess superplasticity.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian D Halford whose telephone number is (703) 306-0556. The examiner can normally be reached on M-F 10:30-8:00; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1020.



David Bagnell
Supervisory Patent Examiner
Art Unit 3672

BDH
May 30, 2003